

Trends in diabetes medication use in Canada, England, Scotland and Australia: a repeated cross-sectional analysis (2012-2017)

Diabetes Action Canada Workshop 2020

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Introduction: Why are you motivated to do this work? What is the problem? What is the opportunity?

- New medications to lower blood sugar have been introduced in the past two decades
- Some have research evidence of:
 - Less risk of **heart and kidney** disease; can promote **weight loss**
 - Sodium-glucose cotransporter 2 inhibitors (SGLT2s)
 - Glucagon-like peptide 1 receptor agonists (GLP1s)
- Others don't have this evidence
 - Dipeptidyl peptidase-4 inhibitors (DPP4s)
- **Metformin** is still recommended as first line to lower sugar
- **Sulfonylureas** are more likely to cause hypoglycemia—and may not be recommended in some **older persons**
- **Are patients increasingly taking more effective new medications?**

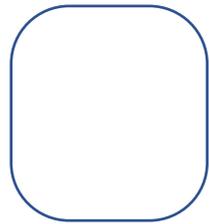
Objective: Preventing diabetes complications

- To study the **uptake** of these new drug classes amongst patients with type 2 diabetes
 - Australia, Canada, England, Scotland
- Retrospective repeated cross-sectional analysis
- Primary care Electronic Medical Data on prescriptions (Canada, UK) and dispensing data (Australia) from 2012 to 2017
 - National Diabetes Repository (Canada)
 - Royal College of General Practitioners Research and Surveillance Centre (England)
 - Scottish Care Information – Diabetes Collaboration database
 - Pharmaceutical Benefits Scheme (PBS) database (Australia)

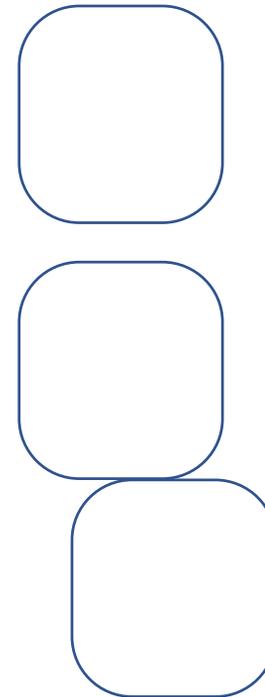
Patients

- Persons aged 40 years or over, living with type 2 diabetes
- On at **least one glucose-lowering drug class** in each year of interest, excluding those on insulin only
- Proportions of patients in each nation, for each year, on each class of medication, and on combinations of classes
- 238,609 patients
- **Patient and Public Involvement:**
 - Repository Research Governing Committee reviews all projects; 50% patients, co-chaired by patient

Metformin



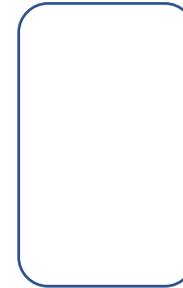
Other medications



Sole medications

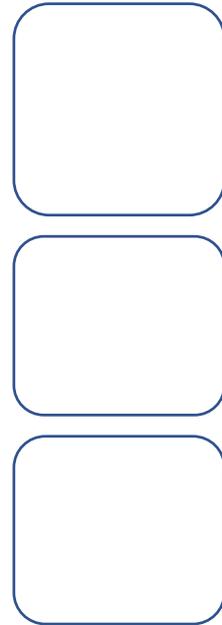
Metformin

Other Medications



- 53% of patients in Canada were on only one medication by 2017
- A decrease of 4.6% from 2012

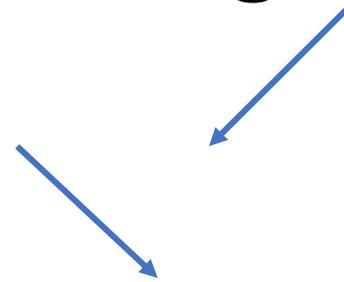
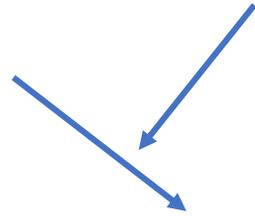
Combination of Metformin and one other medication



The proportion of people on metformin or on a sulfonylurea is decreasing

By 2017, about twice as many people were on Metformin + DPP4 vs Metformin + SGLT2

Medications by age ranges



A larger proportion of older people are on sulfonylureas

A smaller proportion of older people are on SGLT2s

Conclusions

- Older drugs such as sulfonylureas are being displaced by newer drugs
- More DPP4s than SGLT2s are used – despite better evidence for SGLT2s
- The uptake of SGLT2s is lower in older people
- When prescribing, please consider medications with evidence of better outcomes